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| APPLICATION NO.   | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|----------------------|---------------------|------------------|
| 10/069,229  | 12/11/2002  | Gilbert Wolrich      | 10559-305US1        | 1429             |
| 20985   | 7590        | 05/20/2005           | EXAMINER            |                  |
| FISH & RICHARDSON, PC<br>12390 EL CAMINO REAL<br>SAN DIEGO, CA 92130-2081 |             |                      | JOO, JOSHUA         |                  |
|   |             |                      | ART UNIT            | PAPER NUMBER     |
|   |             |                      | 2154                |                  |
| DATE MAILED: 05/20/2005   |             |                      |                     |                  |

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/069,229

Applicant(s)

WOLRICH ET AL.

Examiner

Joshua Joo

Art Unit

2154

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 11 December 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-21 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>12/2/2004, 6/4/2004</u> | 6) <input type="checkbox"/> Other: _____  |

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1. Claims 1-21 are presented for examination.

***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-3, 6, 10, 13-21 are rejected under 35 U.S.C. 102(b) as being unpatentable over Carron et al, US Patent #4,721,521(Carron hereinafter).

4. As per claim 1, Carron teaches the invention as claimed including the method for executing branch instructions (Col 134, lines 31-32. Branching), where bytes are compared with specified values. Carron's invention comprises:

a branch instruction that causes a processor to branch from executing a first sequential series of instructions to a different sequential series of instructions (Col 134, lines 31-32. Process is branched if the test passes or continues with operation if the test fails.) based on a byte in a register being equal or not equal to a specified byte value (Col 134, lines 30-31. Compares byte values to a byte value.), if the specified byte matches or mismatches the byte value (Col 134, lines 31-33. Test passes or fails.)

5. As per claims 14, 17, and 20, Carron teaches the invention as claimed including the method and program for executing branch instructions, where bytes are compared with specified values. Carron's invention comprises:

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a register stack (Col 17, lines 51-54. Register.).

an arithmetic logic unit coupled to the register stack and a program control store that stores a branch instruction that cues the processor to (Fig 3; Col 18, lines 10-15. Processor executes instructions. ALU is inherent. Col 7, lines 59-64. Instructions are stored in memory.):

fetch a byte stored in a register (Col 134, line 8.);

determine whether the byte in the register is equal or not equal to a specified byte value contained in the instruction (Col 134, lines 8-12. Compare byte with the value stored in the specified variable.); and

perform a branch operation specified by the branch instruction based on the specified byte being equal or not equal to the byte in the register (Col 134, lines 8-12. Branch if test passes.).

6. As per claims 2, 15, 18, and 21, Carron teaches the invention wherein the branch is to an instruction at a specified label (Col 118, lines 11-12. Branch to address label.).

7. As per claim 13, Carron teaches the instruction of claim 1 wherein the branch instruction includes a Byte\_spec Number that specifies the byte in the register to be compared with byte\_compare\_value (Col 134, lines 23-25. Instruction specifies the byte to be compared with the variable.).

8. As per claims 3, 16, and 19, Carron teaches the invention wherein branch instruction comprises: a bit\_position field that specifies the byte in a longword contained in the register (Col 22, lines 39-52, Col 134, line 14-26. Indicates byte position, indicated by opcode commands.).

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9. As per claim 6, Carron teaches the instruction of claim 1 wherein the register is a context-relative transfer register or a general-purpose register that holds the operand (Col 26, line 65- Col 27, line 2. Operation routines are stored in memory.).

10. As per claim 10, Carron teaches the instruction of claim 1 wherein the branch instruction allows branches to occur based on evaluation of a byte that is in a data path of a processor (Col 134, lines 8-12. Branching occurs of byte in buffer.).

***Claim Rejections - 35 USC § 103***

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

12. Claims 4 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Carron in view of Atkins et al, US Patent #5,898,866 (Atkins hereinafter).

13. As per claims 4 and 5, Carron does not teach the instruction of claim 1 wherein the branch instruction comprises: an optional token that is set by a programmer and specifies a number i of instructions to execute following the branch instruction before performing the branch operation where the number of instruction before performing the branch operation where the number of instructions can be specified as one, two, or three.

14. Atkin teaches of an implementing hardware to execute loops for a branch operation, where a field in the instruction specifies the number of instructions to execute prior to branching (Col 2, lines 28-31; Col 10, lines 21-23.).

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15. It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Carron and Atkins because the teachings of Atkin's to use a loop operation and indicate the number of instructions prior to branching would enhance the performance of Carron's system by reducing code space and decrease execution time.

16. Claims 7, 8, and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Carron in view of Bruckert et al, US Patent #4,742,151 (Bruckert hereinafter).

17. As per claims 7 and 8, Carron teaches of instructions to execute following the branch instruction before performing the branch operation (Col 134, lines 8-26). However, Carron does not teach the instruction wherein the branch instruction comprises: an optional token that is set by a programmer and which specifies a guess\_branch prefetch for the instruction for the "branch taken" condition rather than the next sequential instruction.

18. Brucket teaches of executing instructions where a determination is made as to whether a branch should or should not be taken, and teaches of prefetching "branch taken " instructions (Col 1, lines 22-29).

19. It would have been obvious to one of ordinary skill in the art the time the invention was made to combine the teachings of Carron and Brucket because both teachings deal with executing branching instructions in a processing system. Furthermore, the teachings of Brucket to prefetch "branch taken" instructions and executing branch guessing instructions would improve the performance of Carron's system by allowing high instruction throughput.

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20. As per claim 11, Carron teaches the instruction of claim 1 wherein the branch instruction branches on a byte matching the byte value (Col 134, lines 8-10). However, Carron does not teach wherein the instruction prefetches the instruction for the "branch taken" condition.

21. Brucket teaches of executing instructions where a determination is made as to whether a branch should or should not be taken, and teachings of prefetching "branch taken " instructions (Col 1, lines 22-29).

22. It would have been obvious to one of ordinary skill in the art the time the invention was made to combine the teachings of Carron and Brucket because teachings deal with executing branching instructions in a processing system. Furthermore, the teachings of Brucket to prefetch "branch taken" instructions and executing branch guessing instructions would improve the performance of Carron's system by allowing high instruction throughput.

23. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Carron in view of Gusefski et al, US Patent #5,202,972 (Gusefski hereinafter).

24. As per claim 9, Carron does not teach the instruction of claim 1 wherein the branch instruction allows a programmer to which bit of the register to use to determine the branch operation.

25. Gusefski teaches a computer system executing branch operations, where the hardware allows the selection of bits from the registers to determine the branch operation (Col 7, lines 33-36).

26. It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine teachings of Carron and Gusefski because both teachings deal with the

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execution of branch instructions that are stored in memory. Furthermore, the teachings of Gusefski to allow for the selection of the bit of the register to use for the branch operation would improve the teachings of Gusefski by increasing the capability of the programmer to control the branching processes.

27. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Carron in view of Grochowski et al, US Patent #5,442,756 (Growchowski hereinafter).

28. As per claim 12, Carron does not teach the instruction of claim 1 wherein the branch instruction branches on a byte not matching the byte value and wherein the instruction prefetches the next sequential instruction.

29. Grochowski teaches a computer system for executing branch instructions, where if there is no match, the operation continues to jump or perform conditional branch, without branch prediction (Col 9, lines 1-3. Col 2, line 57-61). The instructions are prefetched (Col 8, lines 59-60; Col 10, lines 21-22).

30. It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Carron and Grochowski because both teachings deal with the execution of branch instruction. The teachings of Growchowski to continue branching operation when a match is not made and prefetching instructions enhances the teachings of Carron by allowing the processor process instructions more quickly and preventing delays caused by mismatches.



***Conclusion***

31. The following prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

US Patent #4,477,872

US Patent #6,338,133

32. A shortened statutory period for reply to this Office action is set to expire THREE MONTHS from the mailing date of this action.

33. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joshua Joo whose telephone number is 571 272-3966. The examiner can normally be reached on Monday to Friday 7 to 4.

34. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John A. Follansbee can be reached on 571 272-3964. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

35. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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May 3, 2005

JJ

 JOHN FOLLANSBEE  
SUPERVISORY PATENT EXAMINER  
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